



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Federal Aviation Regulations

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## Part 170 Establishment and Discontinuance Criteria For Airport Traffic Control Tower Facilities

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### **Introductory Note**

Part 170, effective January 3, 1991, is codified under Chapter I, Subchapter J, Navigational Facilities, of Title 14 of the Code of Federal Regulations.

Part 170 was published as Part IV in the Federal Register on January 3, 1991 (56 FR 336).



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**Part 170**  
**Establishment and Discontinuance Criteria for**  
**Airport Traffic Control Tower Facilities**

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## Part 170

Establishment and Discontinuance Criteria for  
Traffic Control Tower Facilities

Adopted: December 26, 1990

Effective: January 3, 1991

(Published in 56 FR 336, January 3, 1991)

**SUMMARY:** This amendment prescribes benefit-cost based criteria for establishment and discontinuance of visual flight rules (VFR) airport traffic control tower facilities. The FAA uses these criteria to assess the benefits and costs associated with establishing or decommissioning an airport traffic control tower as a part of its mission to maximize safety and efficiency throughout the airport and airway system consistent with available resources. This regulation implements the requirements of recent legislation requiring the publication of criteria for navigational aids and airport traffic control towers. The tower criteria prescribed by this rule will be followed by criteria for other navigational aids as they are developed and revised.

**FOR FURTHER INFORMATION CONTACT:** Mr. Evan Soffer, Office of Aviation Policy and Plans, Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591; telephone (202) 267-3286.

## SUPPLEMENTARY INFORMATION:

*Background*

The FAA has the responsibility to establish or discontinue airport traffic control towers through the national airspace system when activity levels and safety considerations merit such action. Criteria for the installation of towers have historically been developed by the FAA and its predecessor organization, approved internally within the organization, and published since 1951. Current criteria, including the general qualifications necessary to become a candidate site for establishment or discontinuance of VFR airport traffic control towers, are published in "Airway Planning Standard Number One—Terminal Air Navigation Facilities and Air Traffic Control Services" (FAA Order No. 7031.2C) and detailed in "Establishment and Discontinuance Criteria for Airport Traffic Control Towers." (Report No. FAA-APO-83-2). Decisions to establish and operate airport traffic control towers have been and will continue to be based on benefits exceeding costs of such actions. The *Airport and Airway Safety and Capacity Expansion Act of 1987*, Pub. L. 100-223, Section 308 (49 U.S.C. 1348), mandated that these criteria be revised and, for the first time, promulgated through Federal administrative regulation.

*History*

Criteria to establish airport traffic control towers have evolved over time. Initially applied in 1951, a minimum number of operations was required to qualify as a tower candidate. From 1951 through 1974, FAA established minimum qualifying levels of 24,000 annual itinerant operations at air carrier airports, and 50,000 annual itinerant operations at general aviation airports. Differential levels of operations were established under the theory that, at air carrier airports, a greater mix of traffic with a wider range of performance characteristics created a greater potential for accidents. In 1975, the criteria were revised to incorporate benefit cost analysis. To qualify for establishment of a tower, the ratio of benefits to costs had to equal or exceed one.

$$\frac{\text{Benefits}}{\text{Costs}} > 1$$

Forming the basis of current criteria, the 1975 criteria considered collision and other accident risk, reduction in flying time, mix of aircraft types, percent of passengers injured, and percent of aircraft damaged.

Criteria for discontinuing tower services have been employed since 1956. In 1977, the first economic-based discontinuance criteria were detailed in a draft report, "An Analysis of Continued Operation of Selected Airport Traffic Control Towers." The report provided a comprehensive benefit-cost approach to assess the merits of the continued funding of towers. Locations were identified as candidates for discontinuance whenever benefits from continued tower operation were less than operating and maintenance costs over a 15-year forecast period.

In 1983, the FAA revised the economic analysis for VFR airport traffic control towers and the corresponding establishment and discontinuance criteria. These criteria will remain in effect until the effective date of the rule contained herein.

#### *Current Criteria*

The criteria in effect today are divided into two phases. Phase I criteria were constructed as a simplified screening device to manually identify potential candidates for future benefit-cost analysis. They are in the form of a ratio test based on one year's activity for three consecutive one-year reporting periods. A site becomes a candidate for Phase II establishment analysis if the ratio sum of the following formula equals or exceeds 1:

| AC     | AT | GAI    | GAL | MI      | ML | $> 1$   |   |        |   |        |  |
|--------|----|--------|-----|---------|----|---------|---|--------|---|--------|--|
| 38,000 | +  | 90,000 | +   | 160,000 | +  | 280,000 | + | 48,000 | + | 90,000 |  |

A site becomes a candidate for Phase II discontinuance analysis if the ratio sum of the following formula is less than 1:

| AC     | AT | GAI    | GAL | MI     | ML | $< 1$   |   |        |   |        |  |
|--------|----|--------|-----|--------|----|---------|---|--------|---|--------|--|
| 15,000 | +  | 40,000 | +   | 75,000 | +  | 125,000 | + | 20,000 | + | 35,000 |  |

where:

- AC = Air carrier operations
- AT = Air taxi operations
- GAI = General aviation itinerant operations
- GAL = General aviation local operations
- MI = Military itinerant operations
- ML = Military local operations

The formula considers activity by user class and differentiates by aircraft size by evaluating air carrier and commuter activity, which are defined in part by aircraft size, in separate classes. Phase II criteria compare the present value of tower benefits with the present value of tower costs over a 15-year period. If the tower meets the initial benefit-cost screening for either establishment or discontinuance, then a site-specific analysis is performed.

The 1983 methodology to calculate benefits and costs for establishment and discontinuance criteria is still in effect today (see Report No. FAA-APO-83-2). Site-specific activity forecasts are used to estimate the benefits resulting from prevented aircraft collisions, from other prevented accidents, and from reduced flying time. Considered in the benefit analysis is the mix of aircraft types—air carrier, air taxi, general aviation, and military—and levels of local and itinerant traffic operating within the terminal area. Also considered are the number of enplaned passengers and crew members who might be fatally or nonfatally injured in a collision or other type of tower-preventable accident. Dollar values are assigned to prevented fatalities, injuries, reduced aircraft operating costs, and time savings for passengers to provide a common basis for comparing benefits and costs.

Recurring tower costs include annual costs of staffing, maintenance, equipment, supplies, and leased services. Establishment costs include nonrecurring investment costs, such as facilities, equipment, and operational startup. Tower discontinuance criteria use the same annual costs as establishment criteria. Discontinuance criteria also consider the costs of closing the tower.

*Revised Criteria*

As in past criteria, the revised criteria for VFR airport traffic control tower establishment require that candidate airports have life cycle benefits that exceed life-cycle costs.

$$\frac{\text{Present Discounted Value of Benefits}}{\text{Present Discounted Value of Costs}} > 1$$

Criteria for airport control tower discontinuance specify that the present value of benefits derived from continued tower operation compared to the present value cost of continued operation are less than one.

$$\frac{\text{Present Discounted Value of Benefits}}{\text{Present Discounted Value of Costs}} < 1$$

In compliance with Pub. L. 100-223, the FAA revised the establishment and discontinuance criteria for airport traffic control towers, the procedures to calculate benefits and costs, and the results when the criteria are applied to airports using current forecasts of activity (see Report No. FAA-AP0-90-7, "Establishment and Discontinuance Criteria for Airport Traffic Control Towers"). The revised criteria methodology eliminate Phase I criteria, update accident rates, and update economic values used to calculate benefits. In addition, the statute requires that the criteria eliminate qualification distinctions based on aircraft size.

Distinctions according to classes of aircraft are eliminated in two ways. First, by eliminating Phase I criteria, the distinction based on aircraft size is removed ("air carrier" and "commuter" service is defined in part by aircraft size). Second, the methodology to calculate benefits contains no reference to aircraft size. Only three functional user groups are used in the benefit-cost calculation: scheduled commercial, nonscheduled commercial, and noncommercial. These user groups have been constructed to reflect differences in the nature of public transport in today's deregulated environment, operating requirements, and sources of data considered helpful in obtaining accurate estimates of potential tower benefits.

The elimination of Phase I criteria reduces confusion regarding the meaning of the formula result. Because of improved automation and the widespread availability of computer equipment, the need no longer exists for the preliminary screening provided by Phase I criteria. Detailed Phase II benefit-cost analysis can now be accomplished quickly and accurately.

Benefit-cost analyses of potential airport traffic control towers are based on two types of benefits (safety and efficiency) and two types of costs (annual and investment). Safety benefits derive from avoiding accidents and their associated fatalities, injuries and property damage. Efficiency benefits derive from the reduction in flying time—saving time of aircraft occupants and reducing variable operating costs of aircraft. Investment costs include the initial costs associated with installing and staffing a new tower. Annual costs are comprised of staffing costs for operation, maintenance, leased communications, and administrative overhead. Discontinuance criteria substitute decommissioning costs for investment costs.

Explicit values assigned to passenger time, life, injuries, aircraft replacement and restoration, and aircraft operating costs provide a basis for comparing benefits to costs across airports. Economic benefits are based on airport-specific aviation activity projected in the FAA's annual Terminal Area Forecasts. Benefits and costs are estimated for a 15-year life cycle and are discounted to their present value using a 10 percent discount rate as directed by the Office of Management and Budget.

*How the Criteria Apply*

The FAA uses the benefit-cost criteria to determine the eligibility of sites for establishment or discontinuance of VFR airport traffic control tower facilities. A site is eligible for the establishment of a facility or service when the ratio of the benefits to the costs of establishment equals or exceeds 1.0.

A facility or service may be discontinued if the benefits expected to be realized over the remainder of its life cycle fall below its recurring operation, maintenance, and decommissioning costs. Additional factors, such as terrain, weather, operational requirements, or national security, may also be considered in the evaluation of sites as candidates for establishment or decommissioning.

Meeting the economic criteria is usually a necessary condition for facility establishment. However, meeting the criteria is not a guarantee that a tower will be established.

#### *Criteria Results*

All nonmilitary airports in the Terminal Area Forecasts were evaluated with the current and revised benefit-cost computer programs for establishment or discontinuance of an airport traffic control tower. Since the FAA issued the notice of proposed rulemaking (NPRM) for establishment and discontinuance criteria for VFR airport traffic control towers (54 FR 22698; May 25, 1989), it has finalized a separate and independent update of various standardized economic values used in FAA investment and regulatory analyses. In addition, aviation activity projections provided by the FAA's Terminal Area Forecasts data base have been updated since the issuance of the NPRM. The criteria and underlying benefit-cost analysis on which this rule is based have been changed to account for differences between the revised draft and final economic values. The FAA believes that the resulting criteria will promote the efficient use of resources while satisfying air traffic control requirements.

Because of the changes, the results outlined below are different than those in the NPRM, resulting in four fewer establishment sites and five additional discontinuance sites. Approximately 3,500 nontowered airports, along with 20 FAA contract towered airports, 43 nonfederal contract towered airports, and 23 airports with decommissioned or temporarily closed towers were considered for tower establishment. Of these sites, 29 had benefit-cost ratios of 1.0 or greater and could be processed as candidates for tower establishment on a site-specific basis. An additional 400 airports have FAA control towers and were considered for discontinuance. Of the VFR towered airports, 31 had benefit-cost ratios less than 1 and could be evaluated for discontinuance on a site-specific basis.

#### *Need for the Regulation*

This rule is promulgated under the authority of Pub. L. 100-223 which requires the promulgation of regulations to establish criteria for the installation of airport control tower facilities and other navigational aids. The promulgation of this rule satisfies the requirement for airport traffic control tower criteria. Criteria for other navigational aids will be promulgated through future rulemakings as they are developed and revised.

#### *Discussion of Comments*

##### *Introduction*

Twenty-four parties responded to the NPRM. The comments were categorized as follows: concurrence without comment, site specific concern over the proposed discontinuance criteria, applicability to contract towers, identification of and credit for all benefits, definitional problems, and other comments. The FAA has considered all the comments and has amended the rule and the underlying benefit-cost analysis, where appropriate.

##### *Concurrence Without Comment*

Three commenters concurred with the provisions of the proposed rule without further comment. These commenters included the Aircraft Owners and Pilots Association (AOPA), the Air Transport Association of America (ATA), and the Air Line Pilots Association (ALPA).

##### *Site-Specific Concern Over the Proposed Discontinuance Criteria*

The most frequent comment pertained to site-specific concerns over the proposed discontinuance criteria. Of the 12 parties that so commented, 10 parties commented specifically on the Joplin Municipal Airport (Joplin, MO), including local officials of Joplin and surrounding communities, the Chamber

of Commerce, the airport manager, a fixed-base operator, and a reservation travel service company. The two remaining parties were the airport director of Owensboro-Daviess County Regional Airport (Owensboro, KY) and the Director of Transportation of Jefferson City, MO.

Most of the parties expressing concern over Joplin Municipal vis-a-vis the discontinuance criteria stated that "the FAA plans to close air traffic control towers at smaller airports using arbitrary numbers" and that "such action will jeopardize the growth of business and economic development in the communities served by smaller airports."

In response, the FAA has no general policy or plans to close any specific tower or group of towers. The primary purpose of towers is to enhance the safety of aircraft operations. The FAA believes that the revised criteria will maximize safety for the aviation system as a whole, consistent with the finite resources available to provide air traffic control services. Tower operations will be continued where benefits are demonstrated as outweighing the costs.

The discontinuance criteria require an economic comparison of the safety and efficiency benefits with the net costs of continued tower operation (where net costs include operations and maintenance costs reduced by the termination costs associated with decommissioning or discontinuance). At sites where the benefits fall short of the costs, it is economically sensible to consider termination of tower services and divert these resources to other sites with greater accident prevention and efficiency benefit potential. Conversely, if the benefits outweigh the costs, continued operation of the tower is the preferred action.

While meeting the discontinuance criteria qualifies a site as a discontinuance candidate, decisions to actually discontinue a tower are made on a case-by-case basis. Before a final decision to discontinue a tower is made, the candidate site is subjected to close and highly detailed scrutiny, not only on the basic benefit algorithms within the benefit-cost analysis, but also on the basis of site-peculiar nonquantifiable factors and considerations.

#### *Applicability to Contract Towers*

Six parties, including the American Association of Airport Executives (AAAAE), the Director of Transportation of Jefferson City (MO), and the airport managers of Enid Woodring Municipal, Paducah, Cuyahoga County, and Flagstaff Pulliam airports, commented on the uniqueness of contract towers vis-a-vis FAA-funded and -operated towers. The recurring theme in this comment category pertained to the lower cost structures of contract towers relative to the cost structure presented in the underlying benefit-cost report. In addition, the Director of Transportation of Jefferson City requested consideration of the FAA in funding his non-Federal tower and the manager of Twin Cities Airport/Ross Field (Benton Harbor, MI) requested that his tower be reopened.

In response, the illustrative costs presented in the benefit-cost analysis report (Report No. FAA-APO-90-7) are based on average costs for FAA-funded and -operated towers. The rule itself permits the use of site-specific costs. Hence, notwithstanding the cost illustration, tower costs will differ from case-to-case and are accommodated in the evaluation process. When sites are reviewed and evaluated as candidates for establishment or discontinuance in actual practice and application, site-specific cost data are used in the benefit-cost analysis performed. The cost data would be either actual/estimated FAA costs or the actual/estimated contract costs, as appropriate, and tailored to the extent possible to the site being evaluated.

The objective of the FAA's Contract Tower Program is to continue providing air traffic control (ATC) services at airports with low activity VFR control towers in the most economical manner. This will permit the FAA to make better use of its limited resources, to maintain an efficient network of control towers, and to provide effective and safe service in a cost effective manner. Construction of an airport traffic control tower (ATCT) structure is beyond the scope of the FAA's Contract Tower Program since the contracts are only for the provision of ATC services. The FAA plans to contract for the operation of its Level I VFR control towers as long as continued operation is cost beneficial under a contract operation. Site-specific data, including actual or projected contract costs, are and will be used in each benefit-cost analysis to determine if the ATCT meets criteria for continued operation (i.e., above the discontinuance criteria) or if an ATCT that had been previously closed should be reopened.

The Contract Tower Program also includes a process for the review and consideration of an airport with an operating non-Federal control tower if it meets the criteria for continued operation (i.e., above discontinuance criteria using actual or projected contract costs). Airports that do not have an operating non-Federal ATCT or a control tower structure available for occupancy that meets building standards would not be considered for inclusion in this program. As noted above, construction of an ATCT structure is beyond the scope of the FAA's Contract Tower Program since the contracts are only for the provision of ATC services.

#### *Identification of and Credit for all Benefits*

Three parties suggested that not all benefits are addressed by the underlying benefit-cost analysis. In response, and in addition to responses to specific comment outlined below, it should be noted that the rule itself does not specify the exact form of the benefits analysis. The benefit-cost analysis is illustrative and may include other benefit categories on a site-by-site basis.

The general manager of Mizzou Aviation Company, a fixed base operator serving Joplin Municipal Airport, stated that the criteria do not seem to consider growth factors which can be immediate and phenomenal. This commenter also felt that air traffic occurring when the tower is closed had not been considered. In response, this commenter apparently overlooked the fact that the benefit-cost analysis program supporting the tower criteria can and should consider the forecast traffic activity for each and every year of the tower's life cycle. Also, the analysis does account for air traffic activity occurring when the tower is closed.

Among other comments discussed separately below, the airport manager of Paducah Airport Corporation (Paducah, KY) and the airport director of Owensboro-Daviess County Regional Airport (Owensboro, KY) stated that they were unable to determine whether any benefit recognition is given for firefighting, rescue and medical treatment supplies used as the result of an aircraft accident, and Aircraft Rescue and Fire Fighting (ARFF) response to an aircraft accident where there is a control tower to guide ARFF crews to the accident site. In response, although not directly apparent from the recommended benefit-cost approach, averted ARFF expenses are embodied and amortized within the value per life saved used by the analysis in quantifying the value of averted fatalities. ARFF response time, however, is not included in the quantified benefit methodology due to expected variability from site-to-site (e.g., presence of UNICOM, fixed-base operators, population density, etc.). In practice, these benefits may be expressly estimated on a site-specific basis or treated as a nonquantified benefit and acknowledged as such.

Both the Paducah airport manager and the Owensboro-Daviess airport director also commented that the FAA has not made benefit allowances for the value of lives and property when an off-airport accident occurs. In response, lives lost on the ground in tower-preventable accidents (i.e., other than aircraft occupants) are accounted for by virtue of drawing on the National Transportation Safety Board Data Base which distinguishes between aircraft occupants and other persons. Damage to property other than aircraft is not expressly quantified (due to extreme variability), but rather included with other "nonquantified" benefits and recognized as such.

In addition, the Owensboro-Daviess airport director stated that: (1) it is not clear if military aircraft costs and values are included in the noncommercial functional category; and (2) there is no value placed on the effects of aviation liability insurance premiums. In response to (1), military aircraft operations are included in the noncommercial functional user category. In response to (2), aviation liability insurance premiums are, in effect, already captured in the benefits methodology by virtue of accounting for expected economic losses of destroyed and damaged aircraft (i.e., aggregate pooled insurance premiums simply represent the expected losses to be incurred by the parties insured, ignoring insurance company administrative expenses and profit margins). To further expressly add liability premiums would, therefore, constitute double counting.

In addition to the ARFF and off-airport loss comments, the Paducah airport director had other comments and questions in the category of benefit accountability. He commented that it is unclear what weight nonquantitative factors will bear as compared to quantitative analysis vis-a-vis evaluation of one site against another (e.g., will one airport's runway threshold's line-of-sight problems be evaluated in the same manner as another's; or what weight will heavily populated property located immediately off the end of a runway have on the level of benefits). He also felt that savings generated by towers

in the sequencing of aircraft (which preclude the necessity of flying a traffic pattern) were not accounted for.

In response, nonquantitative factors by nature do not lend themselves to being quantified for across-the-board application. However, because the in-depth benefit-cost analyses are performed at a central location (FAA, Washington Headquarters), treatment of qualitative considerations is relatively consistent from case to case. The benefits generated by towers in minimizing or reducing overflights and traffic pattern flying are addressed in detail in the benefit-cost analysis guide.

#### *Definitional Problems*

Definitional problems were cited by the AAAE, the Regional Airline Association (RAA), and the airport manager of Paducah Airport Corporation.

The AAAE recommended a clarification in the Definitions Section of the rule (Subpart A, Section 170.3). To avoid later confusion, the AAAE recommended that the definition of "scheduled commercial service" be changed to read "the carriage by aircraft in air commerce under Parts 121 and 135 of persons or property for compensation or hire based on published flight schedules." In response, the FAA has accepted this definitional comment and has made the corresponding change in the final rule, also including the addition of Part 127.

The RAA asked that if the point of the NPRM was to establish criteria for tower establishment or disestablishment using the three categories of scheduled commercial, nonscheduled commercial, and noncommercial, why are "air carrier," "commuter air carrier," "commuter/air taxi operations," and "air taxi" included in the Definitions Section? In response, the FAA has accepted this comment and deleted the questioned references.

The Paducah airport manager noted that the underlying benefit-cost analysis report states that, at towered airports, data are available on operations classified as scheduled commercial, nonscheduled commercial, and noncommercial traffic. The airport manager pointed out that FAA traffic recording procedures require identification by air carrier, air taxi, itinerant general aviation, itinerant military, local civil, and local military operations. In response, the functional categories of scheduled commercial, nonscheduled commercial, and noncommercial traffic have been constructed and adopted by the revised tower criteria to reflect differences in the nature of public transport in today's deregulated environment, operating requirements, and sources of data considered helpful in obtaining accurate estimates of potential tower benefits. They are not inconsistent, however, with current traffic activity counting and recording procedures. Scheduled commercial operations encompass air carrier and air commuter operations; nonscheduled commercial operations encompass nonscheduled air taxi operations; and noncommercial operations encompass general aviation and military operations.

The Paducah airport manager cited formula references to "the number of user class 'i' aircraft." He concluded that the inference is that the FAA will use broad classes of aircraft data or values which may have no relationship to site-specific flight operations. Use of "averaged" user aircraft classes defeats the purpose of the benefit-cost calculation. In response, while Section 308 of the *Airport and Airway Safety and Capacity Expansion Act* prohibits the FAA from differentiating between user classes based on aircraft size, it does permit consideration of passengers served. As such, site-specific estimates of passengers per aircraft operation are considered in development and application of the criteria.

The Paducah airport manager also indicated that there is a definition gap in applicability for Part 121 aircraft with fewer than 60 seats, unless such operators are placed in the "air carrier" category. He contended that, regardless of the type and size of aircraft and regardless of whether the service is certified and operated under Part 121 or 135, any scheduled passenger service operation should be considered and classified as an air carrier operation. In response, Part 121 aircraft with less than 60 seats are classified and counted within the scheduled commercial category. Section 308 of the *Airport and Airway Safety and Capacity Expansion Act* prohibits the FAA from differentiating between user classes based on aircraft size. The illustrative benefit-cost analysis includes all Parts 121, 127 and 135 operations within the scheduled commercial service functional category. Therefore, this comment is embodied in the recommended benefit-cost analysis procedure.

The Paducah airport manager further stated that lumping military operations with general aviation activity (in the noncommercial traffic category) creates a problem because of differences in their respective sophistication and values. In response, the FAA acknowledges that, as a whole, a military aircraft is significantly different from an average general aviation aircraft. However, military traffic at actual and potential towered civil airports, toward which the criteria are aimed, is not representative of the overall military fleet, but rather is skewed toward smaller aircraft such as trainers, small transports, and rotorcraft.

#### *Other Comments*

The RAA believed that the procedures in the underlying benefit-cost report should be spelled out in the published regulations. In response, the benefit-cost analysis is purely illustrative and not hard and fast. Benefit parameters such as forecast activity, value per life saved, costs of injuries, etc., will change over time and the analysis needs to be flexible enough to accommodate unique site benefits. Further, the tower criteria being promulgated under this rule are the first of a number of facilities and equipment establishment and discontinuance criteria which will eventually make up the new Part 170. It is not feasible or reasonable to include the underlying benefit-cost analyses in the Federal Aviation Regulations. Therefore, the FAA will cite the underlying benefit-cost procedures by reference only and make them available on request.

The airport manager of the Enid Woodring Municipal Airport, while acknowledging that the new criteria are a significant improvement over the previous criteria, stated that the "numbers are still unrealistically high . . . for tower candidate airports struggling to reach the magic criteria which will enable them to qualify for a Federal tower." In response, the establishment criteria, among other requirements, are based on an objective economic comparison of benefits and costs to assure that there are net positive benefits from tower establishment or discontinuance.

The Owensboro-Daviess County airport director had several miscellaneous comments. He stated that "there is a strong indication that the entire program is being developed as a means of meeting an end result relating to the Department budgetary concerns." In response, the FAA disagrees with this statement. The criteria are based on an objective assessment of tower benefits and costs and the generally accepted principles of benefit-cost analysis. The criteria are developed completely independent of the budgeting process. The criteria are intended to be a decisionmaking tool and include other considerations in addition to the benefit-cost assessment.

The Owensboro-Daviess airport director also felt that there must be some way of making the evaluation process simpler and that benefit-cost analysis programs involving aviation safety should be outweighed by practicality. In response, the FAA has found benefit-cost analysis to be a useful aid in the investment decisionmaking process, far outweighing the complexities inherent in their development. Once developed, cost benefit analysis programs are easy to apply since they are microcomputer based and capable of accommodating endless sensitivity (or "what-if") analyses.

#### *Regulatory Evaluation Summary*

The promulgation of this regulation is expected to have only minimal impact, if any, on the public. Since the new criteria are not expected to result in a significant change in the number of towers being established or discontinued, there is no new cost to the FAA resulting from the application of the revised criteria. As with current criteria, costs to establish an air traffic control tower are not incurred until a site-specific benefit-cost analysis is completed and the resulting benefit-cost ratio equals or exceeds 1. Under this initial screening where benefit-cost ratios are computed using national average costs, 29 sites are identified to be analyzed on a site-specific basis. This compares to a total 32 sites using existing criteria with accident rates and economic values which have not been updated.

The application of the revised criteria is part of the normal procedures in analyzing potential ATCT sites and the current rule further formalizes these procedures. The benefit of this rule is to inform the public of the benefit-cost criteria used by the FAA for the allocation of resources for establishment of air traffic control towers and further assure adequate consideration of the safety and efficiency effects of potential traffic control towers. Since this action has no identifiable cost impact to the public and has a positive, although unquantifiable benefit, a detailed regulatory evaluation is unnecessary.

*Regulatory Flexibility Determination*

This rule provides a guide for internal FAA management in the establishment and discontinuance of air traffic control towers; for this reason and for the reasons discussed under "Regulatory Evaluation Summary" above, it is certified that this rule will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

*Federalism Implications*

The regulation outlined herein will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this regulation does not have Federalism implications warranting the preparation of a Federalism Assessment.

*Conclusion*

For the reasons discussed above, the FAA certifies that this rule will not have significant economic impact, positive or negative, on a substantial number of small entities, and a regulatory flexibility analysis is not required. In addition, and for the same reasons, the proposal is not major under Executive Order 12291 and is not significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since the rule will impose no additional administrative cost on the FAA, the estimated benefits are expected to exceed the estimated costs of implementation.

**THE AMENDMENT**

In consideration of the foregoing, the FAA is adding Part 170 to the Federal Aviation Regulations (14 CFR Part 170) effective January 3, 1991.

**Subpart A—General**

Sec.

170.1 Scope.

170.3 Definitions.

**Subpart B—Airport Traffic Control Tower**

Sec.

170.11 Scope.

170.13 Airport Traffic Control Tower (ATCT) Establishment Criteria

170.15 ATCT Discontinuance Criteria.

*Authority:* 49 U.S.C. 1343, 1346, 1348, 1354(a), 1355, 1401, 1421 (as amended by Pub.L. 100-223), 1422 through 1430, 1472(c), 1502, and 1522; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).



## Part 170—Establishment and Discontinuance Criteria for Airport Traffic Control Tower Facilities

### Subpart A—General

#### § 170.1 Scope.

This subpart sets forth establishment and discontinuance criteria for navigation aids operated and maintained by the United States.

#### § 170.3 Definitions.

For purposes of this subpart—

*Aircraft operations* means the airborne movement of aircraft in controlled or noncontrolled airport terminal areas, and counts at en route fixes or other points where counts can be made. There are two types of operations: local and itinerant.

(1) "Local operations" mean operations performed by aircraft which:

(i) Operate in the local traffic pattern or within sight of the airport;

(ii) Are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport; or

(iii) Execute simulated instrument approaches or low passes at the airport.

(2) "Itinerant operations" mean all aircraft operations other than local operations.

*Air navigation facility* (NAVAID) means any facility used, available for use, or designated for use in the aid of air navigation. Included are landing areas; lights; signaling, radio direction-finding, or radio or other electronic communication; and any other structure or mechanism having a similar purpose of guiding or controlling flight or the landing or takeoff of aircraft.

*Air traffic clearance* means an authorization by air traffic control for an aircraft to proceed under specified traffic conditions within controlled airspace for the purpose of preventing collision between known aircraft.

*Air traffic control* (ATC) means a service that promotes the safe, orderly, and expeditious flow

of air traffic, including airport, approach, departure, and en route air traffic control.

*Air traffic controller* means a person authorized to provide air traffic service, specifically en route and terminal control personnel.

*Airport traffic control tower* means a terminal facility, which through the use of air/ground communications, visual signaling, and other devices, provides ATC services to airborne aircraft operating in the vicinity of an airport and to aircraft operating on the airport area.

*Alternate airport* means an airport, specified on a flight plan, to which a flight may proceed when a landing at the point of first intended landing becomes inadvisable.

*Approach* means the flightpath established by the FAA to be used by aircraft landing on a runway.

*Approach control facility* means a terminal air traffic control facility providing approach control service.

*Arrival* means any aircraft arriving at an airport.

*Benefit-cost ratio* means the quotient of the discounted life cycle benefits of an air traffic control service or navigation aid facility (i.e., ATCT) divided by the discounted life cycle costs.

*Ceiling* means the vertical distance between the ground or water and the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obstruction."

*Control tower*—See Airport Traffic Control Tower.

*Criteria* means the standards used by the FAA for the determination of establishment or discontinuance of a service or facility at an airport.

*Departure* means any aircraft taking off from an airport.

*Discontinuance* means the withdrawal of a service and/or facility from an airport.

*Establishment* means the provision of a service or facility at a candidate airport.

*Instrument approach* means a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

*Instrument flight rules (IFR)* means rules governing the procedures for conducting flight under instrument meteorological conditions (IMC) instrument flight.

*Instrument landing system (ILS)* means an instrument landing system whereby the pilot guides his approach to a runway solely by reference to instruments in the cockpit. In some instances, the signals received from the ground can be fed into the automatic pilot for automatically controlled approaches.

*Instrument meteorological conditions (IMC)* means weather conditions below the minimums prescribed for flight under Visual Flight Rules (VFR).

*Instrument operation* means an aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center (ARTCC).

*Life cycle benefits* means the value of services provided to aviation users over the life span of a facility or service.

*Life cycle costs* means the value of research and development costs, investment costs, operation costs, maintenance costs, and termination costs over the life span of a facility or service.

*LORAN-C* means an electronic navigational system by which hyperbolic lines of position are determined by measuring differences in the time of reception of synchronized pulse signals from two fixed transmitters.

*Maintenance costs* means the costs incurred in servicing and maintaining a facility after establishment.

*Mean sea level (MSL)* means the base commonly used in measuring altitudes.

*Microwave landing system (MLS)* means a landing system which enables equipped aircraft to make curved and closely spaced approaches to properly instrumented airports.

*Noncommercial traffic* means all aircraft operations that are conducted free of compensation.

*Nonprecision approach procedure* means an FAA standard for approaching an IFR runway where no electronic glide slope is available.

*Nonscheduled commercial service* means the carriage by aircraft in air commerce of persons or property for compensation or hire that are not operated in regularly scheduled service such as charter flights.

*Present value (PV)* means the value of a stream of future benefits or costs that are discounted to the present.

*PVB or BPV* means the discounted value of life cycle benefits.

*PVC or CPV* means the discounted value of life cycle benefits.

*PVCM or CMPV* means the discounted value of operations and maintenance costs less termination costs over a facility's remaining life cycle.

*Runway* means a defined rectangular area on a land airport prepared for the landing and takeoff of aircraft along its length.

*Runway visual range* means an instrumentally derived value based on standard calibrations that represent the horizontal distance a pilot will see down the runway from the approach end.

*Scheduled commercial service* means the carriage by aircraft in air commerce under Parts 121, 127, and 135 of persons or property for compensation or hire based on published flight schedules.

*Separation* means the spacing of aircraft in flight and while landing and taking off to achieve their safe and orderly movement.

*Takeoff clearance* means authorization by an airport traffic control tower for an aircraft to take off.

*Tower cab* means an ATC facility located at an airport. Controllers at these facilities direct ground traffic, takeoffs, and landings.

Traffic advisories means advisories issued to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant attention.

*Traffic pattern* means the flow of aircraft operating on and in the vicinity of an airport during specified wind conditions as established by appropriate authority.

*VFR traffic* means aircraft operated solely in accordance with Visual Flight Rules.

*Visual flight rules (VFR)* means rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, "VFR" is used by pilots and controllers to indicate the type of flight plan.

*Visual meteorological conditions (VMC)* means meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling equal to or better than specified minima.

## **Subpart B— Airport Traffic Control Towers**

### **§ 170.11 Scope.**

This subpart sets forth establishment and discontinuance criteria for Airport Traffic Control Towers.

### **§ 170.13 Airport Traffic Control Tower (ATCT) Establishment Criteria.**

(a) The following criteria along with general facility establishment standards must be met before an airport can qualify for an ATCT:

- (1) The airport, whether publicly or privately owned, must be open to and available for use by the public as defined in the Airport and Airway Improvement Act of 1982;

- (2) The airport must be recognized by and contained within the National Plan of Integrated Airport Systems;

- (3) The airport owners/authorities must have entered into appropriate assurances and covenants to guarantee that the airport will continue in operation for a long enough period to permit the amortization of the ATCT investment;

- (4) The FAA must be furnished appropriate land without cost for construction of the ATCT; and

- (5) The airport must meet the benefit-cost ratio criteria specified herein utilizing three consecutive FAA annual counts and projections of future traffic during the expected life of the tower facility. (An FAA annual count is a fiscal year or a calendar year activity summary. Where actual traffic counts are unavailable or not recorded, adequately documented FAA estimates of the scheduled and nonscheduled activity may be used.)

(b) An airport meets the establishment criteria when it satisfies paragraphs (a)(1) through (a)(5) of this section and its benefit-cost ratio equals or exceeds one. As defined in § 170.3 of this part, the benefit-cost ratio is the ratio of the present value of the ATCT life cycle benefits (BPV) to the present value of ATCT life cycle costs (CPV).

$$\text{BPV/CPV} > 1.0$$

(c) The satisfaction of all the criteria listed in this section does not guarantee that the airport will receive an ATCT.

### **§ 170.15 ATCT Discontinuance Criteria.**

An ATCT will be subject to discontinuance when the continued operation and maintenance costs less termination costs (CMPV) of the ATCT exceed the present value of its remaining life-cycle benefits (BPV):

$$\text{BPV/CMPV} < 1.0$$

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